

DETAILED ACTION

1. This office action is in response to Applicant's amendment filed 14 July 2008.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 9 and 10 are rejected under 35 U.S.C. 102(b) as being anticipated by WO 84/04367. WO 84/04367 shows in Figures 1-3 a hydro-mechanical mandrel having one end (inner surface at "b" as shown in Fig. 1) for mounting in a machining device and having a second end (outer surface at "a" as shown in Fig. 1) for releasably holding a tool (a). WO 84/04367 further shows the mandrel comprising an inner sleeve (containing surface "e") and an outer sleeve (containing surface "f") enclosing at least one chamber (c) in which a clamping means in the shape of an annular piston (d) is enclosed. WO 84/04367 further shows the piston by means of hydraulically operating means is displaceable in an axial direction (page 5, lines 13-20), wherein the piston and the inner sleeve have respective contacting and interacting conical surfaces with each other (page 5, lines 10-13) having a conicity that is self-locking (page 5, lines 24-26), whereby axial displacement of the piston in one direction causes radial expansion of the outer sleeve for clamping the tool and axial displacement of the piston in another

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direction causes relief of the outer sleeve for releasing the tool. WO 84/04367 further shows a sealing means arranged at the contacting and interacting conical surfaces between the piston and the outer sleeve (all mating surfaces are assembled with slight interference, see col. 5, lines 20-22), wherein at least a portion of the sealing means (the interference fit between the left side of the piston and outer sleeve in figure 1) is inherently arranged closer to a pressurization side of the piston (to the left side of piston "d" within chamber "c" via oil feed "h" as viewed in Fig. 1) than to a relief side of the piston (to the right side of piston "d" within chamber "c" via oil feed "i" as viewed in Fig. 1).

Regarding claim 9, the phrase "a mandrel having one end for mounting in a machining device and having another end for releasably holding a tool" does not further limit the claim and is merely a functional/intended use statement not defining any specific structure. It should be noted that it has been held that a recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus satisfying the claimed structural limitations. The only requirement is that the prior art reference be capable of said intended use. See MPEP 2114. In this case, WO 84/04367 discloses a structure fully capable of having one end (inner surface at "b" as shown in Fig. 1) being connected to a machining device and a second end (outer surface at "a" as shown in Fig. 1) for releasably holding a tool regardless as to how well it performs.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1-4, 7, and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Elsner (US 5,156,480) in view of WO 84/04367.

6. Regarding claims 1-4 and 7, Elsner '480 shows in Figures 1-4 a hydro-mechanical chuck (1) having one end (at 3) for mounting in a machining device and having a second end (at 4,5) for releasably holding a shaft (2) of a tool. Elsner '480 further shows the hydro-mechanical chuck comprising an inner sleeve (5) with an axial bore for receiving the shaft of the tool and an outer sleeve (4) enclosing at least one chamber (6,9,10) in which a clamping means in the shape of an annular piston (7) is enclosed. Elsner '480 further shows the piston by means of hydraulically operating means (19,20) is displaceable in an axial direction, wherein the piston and the outer sleeve have respective contacting and interacting conical surfaces (at 8) with each other having a conicity that is self-locking, whereby axial displacement of the piston in one direction causes radial displacement of the inner sleeve for clamping the shaft and axial displacement of the piston in another direction causes relief of the inner sleeve for releasing the shaft (page 3, lines 31-48). Elsner '480 further shows the chamber including a pressurized chamber (9 or 10) and a relief chamber (10 or 9). Elsner '480 further shows the inner sleeve and outer sleeve being joined together by welding (at

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tear drop locations located at the extreme outside and inside surfaces between the inner and outer sleeves). Elsner '480 further shows a part intended for clamping a tool is integrated with a part intended for mounting in a machining device (via bolt). Elsner '480 lacks the conicity being between the inner sleeve and the piston, and a sealing means arranged at the contacting and interacting conical surfaces between the piston and the outer sleeve and arranged closer to a pressurization side of the piston than to a relief side of the piston.

WO 84/04367 shows in Figures 1-3 a hydro-mechanical chuck having one end (inner surface at "b" as shown in Fig. 1) for mounting in a machining device and having a second end (outer surface at "a" as shown in Fig. 1) for releasably holding a shaft (b) of a tool. WO 84/04367 further shows the hydro-mechanical chuck comprising an inner sleeve (containing surface "e") with an axial bore for receiving the shaft of the tool (Fig. 1) and an outer sleeve (containing surface "f") enclosing at least one chamber (c) in which a clamping means in the shape of an annular piston (d) is enclosed. WO 84/04367 shows the piston by means of hydraulically operating means is displaceable in an axial direction (page 5, lines 13-20), wherein the piston and the inner sleeve have respective contacting and interacting conical surfaces with each other (page 5, lines 10-13) having a conicity that is self-locking (page 5, lines 24-26), whereby axial displacement of the piston in one direction causes radial displacement of the inner sleeve for clamping the shaft and axial displacement of the piston in another direction causes relief of the inner sleeve for releasing the shaft (page 5, lines 13-20). WO 84/04367 further shows a sealing means arranged at the contacting and interacting

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conical surfaces between the piston and the outer sleeve (all mating surfaces are assembled with slight interference, see col. 5, lines 20-22), wherein at least a portion of the sealing means (the interference fit between the left side of the piston and outer sleeve in figure 1) is inherently arranged closer to a pressurization side of the piston (to the left side of piston "d" within chamber "c" via oil feed "h" as viewed in Fig. 1) than to a relief side of the piston (to the right side of piston "d" within chamber "c" via oil feed "i" as viewed in Fig. 1). In view of this teaching of WO 84/04367, it would have been obvious to one of ordinary skill in the art to modify the hydro-mechanical chuck of Elsner '480 to include a conicity between the piston and inner sleeve to provide the desired clamping surfaces/forces and to include a conical interference fit between the piston and outer sleeve to overcome leakage of the hydraulic system.

Regarding claim 1, the phrase "a chuck having one end for mounting in a machining device and having a second end for releasably holding a shaft tool" does not further limit the claim and is merely a functional/intended use statement not defining any specific structure. It should be noted that it has been held that a recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus satisfying the claimed structural limitations. The only requirement is that the prior art reference be capable of said intended use. See MPEP 2114. In this case, Elsner '480 discloses a structure fully capable of having one end (at 3) being connected to a machining device and a second end (at 4, 5) for releasably clamping a tool regardless as to how well it performs.

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7. Regarding claim 12, the modified invention of Elsner '480 discloses the invention substantially as claimed, except Elsner '408 does not disclose that the sealing means is in the shape of a sealing ring. WO 84/04367 teaches that the interference fit between the mating surfaces may be replaced with annular sealing rings for the purpose of providing an alternative means for preventing leakage between the surfaces. In view of this teaching of WO 84/04367, it would have been obvious to one of ordinary skill in the art to modify the hydro-mechanical chuck of Elsner '480 to include a sealing ring between the piston and outer sleeve in order to have an alternative means to overcome leakage of the hydraulic system.

Response to Arguments

8. Applicant's arguments with respect to the claims have been considered but are moot in view of the new ground(s) of rejection. A new interpretation of WO 84/04367 regarding the means for sealing between the piston and outer sleeve has been applied in the rejections above.

9. For the reasons as set forth above, the rejections are maintained.

Conclusion

10. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ERIC A. GATES whose telephone number is (571)272-5498. The examiner can normally be reached on Mon-Thurs 8:45 - 6:15.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Bryant can be reached on (571) 272-4526. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/E. A. G./
Examiner, Art Unit 3726
16 October 2008

/DAVID P. BRYANT/
Supervisory Patent Examiner, Art Unit 3726